March 28, 1983

Dear Heavy-Duty Engine Manufacturer: CD-83-4(HD)

Subject: 1984 Heavy-Duty Engine Certification

The enclosed letter was sent to General Motors (GM) in response to their request for confirmation that their plans for certification of heavy-duty diesels for the 1984 model year were consistent with the new regulations for 1984 (a copy of the GM letter is also enclosed).

The significant decision reflected by the enclosed letter is that for the 1984 model year only, manufacturers certifying under the half-life useful-life option using the transient test procedure and associated standards (see 86.084-11(e)) will not be precluded from carrying over deterioration data generated using the old steady-state test procedure solely because of the differences in test procedures. The engine families involved must satisfy all normal carryover criteria and all linecrossing restrictions must be met in terms of the 1983 emission standards (which are now also acceptable standards for the 1984 model year).

Since this letter is likely to be of general interest, it is being circulated to all manufacturers who certified 1983 model year heavy-duty engines. Even though GM's letter and our response are both written in the context of heavy-duty diesel engines, it may be of interest to gasoline engine manufacturers. The same rationale can be applied to the certification of heavy-duty gasoline engines under 86.084-10(e). however, it is probably a moot point since it is not likely that any 1983 gasoline engines can achieve the level of the 1984 transient test standards without a change to the emission control system. Thus, the same carryover case would not occur.

If you have any questions regarding the letter, please contact Mr. J. Bozek at (313) 668-4244.

Sincerely yours,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources
Enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ANN ARBOR, MICHIGAN 48105

March 1, 1983

Mr. Thomas M. Fisher, Director
Automotive Emission Control
Environmental Activities Staff
General Motors Corporation
General Motors Technical Center
Warren, MI 48090

Dear Mr. Fisher:

This is in response to your letter of January 28, 1983 (FE: 3045) which requests confirmation that your heavy-duty diesel engine certification plans conform with the provisions of the January 12, 1983 final rules. In summary, we have determined that all three approaches to certifying that you have identified will be acceptable for the 1984 model year.

The first approach involves certification to the 1983 model year standards using all test procedures and certification procedures applicable to 1983. This approach is explicitly allowed in the newly published regulations (see Section 86.084-11(f)).

The third approach is also explicitly allowed by the new regulations (see Section 86.084-11(e)). Here the new transient test standards are used with all emission measurements being

made for both emission-data and durability-data engines with the transient test procedure in Subpart N, while all remaining certification procedures applicable to the 1983 model year are used.

Under the second approach discussed in your letter, you plan to use deterioration factors determined from the 1983 steady-state procedures to determine certification levels for emission-data engines tested according to the 1984 transient test procedures and certified as complying with the 1984 transient test standards. This approach was not anticipated when the regulations were written and is not explicitly discussed in the regulations. Paragraph 86.084-11(e) is the paragraph that authorizes the use of the transient test standards and test procedures in conjunction with the half-life useful life. This paragraph was included to specifically authorize the case where a new family was being certified under the transient test procedures and assumed a new durability engine would be run. In such a case, all testing would be done for both the durability and emission-data engines using the transient test procedures (i.e., the third approach in your letter). Within this context with

regard to durability procedures, when 86.084-11(e) states that "remaining 1983 model year certification procedures shall be used," it means the use of 1983 procedures for service accumulation, deterioration factor (d.f.) calculation, and linecrossing prohibition. For the anticipated case, the linecrossing prohibition presents no implementation problems since the durability test data can be directly compared to the transient-test standard to assure no linecrossing occurred.

While 86.084-11(e) was written in anticipation of the case where all testing would be done using the transient test, an alternative interpretation is possible. That alternative would consider "the remaining 1983 model year certification procedures" to include the test procedures used to generate the deterioration data for the 1983 model year. This interpretation raises the question of how to apply the linecrossing prohibition which is clearly one of the 1983 certification procedures. If the only option available for 1984 was to certify to the transient test standards, it would not seem appropriate to satisfy the linecrossing prohibition by accepting data generated under Subpart D, which only verified that linecrossing did not occur in terms of the 1983 standards. However, since one of the several options available for the

1984 model year is to certify to the previous, less stringent 1983 standards, we cannot clearly conclude that the alternative interpretation of 86 . 084-11 (e) is inconsistent with the overall
intent of the regulations. Under this latter interpretation, we would have reasonable confidence that the in-use emissions from a manufacturer's engine would be less when certified to the 1984 transient test standards (even when using 1983 procedure deterioration factors) than they would have been if that manufacturer had elected the available option to design and certify to the old, less stringent standards.

Given that the regulations are not clear on this point, we find it necessary to defer to the overall intent of the regulations to resolve this matter. The intent of the revised regulations was to facilitate maximum carryover of data for one more year while EPA finally resolved the outstanding issues associated with the heavy-duty regulations. Paragraph 86.084-11(e) was included because EPA did not want to discourage use of the transient test procedures for those manufacturers who were in position to use them. If we limited the interpretation of this paragraph to the specifically anticipated situation described above, the effect would be to deny carryover of 1983 durability data unless the manufacturer certified under the old standards and test procedures, thus, discouraging use of the transient test procedure for emission-data engine testing in 1984. Hence, within the context of all the available options for

1984, we have concluded that paragraph 86.084-11(e) should not be interpreted as precluding the carryover of durability data generated as part of the 1983 model year certification program.

Sincerely yours,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources

FE: 3045

Environmental Activities Staff
General Motors Corporation
General Motors Technical Center
Warren, Michigan 48090

January 28, 1983

Mr. Robert E. Maxwell
Certification Division
Environmental Protection Agency
Plymouth Road
Ann Arbor, MI 48105

Dear Mr. Maxwell:

General Motors plans for certification of its 1984 model year heavy duty diesel engines (HDDEs) include carryover of 1983 families, the addition of new engine models to existing 1983 families and the addition of some new engine families. Although our HDDE transient test capability is limited at this time, we plan to use the 1984 transient test procedure option for all new certification testing. This will allow us to gain experience in the use of the new test procedures and hopefully will eliminate the need to retest these new engine models for the 1985 model year.

Thus, our 1984 HDDE certification program will include the following:

1. Carryover of 1983 engine families using existing 1983 13 mode emission test data for both emission data and durability data engines for compliance with emission standards of 1.5 HC, 25 CO ad 10 HC+NOx (g/bhp-h).

2. The addition of new engine models to existing engine families using the transient test procedure for the new emission data engines and existing 1983 13 mode test emissions durability data (deterioration factors) for compliance with the optional 1984 transient test standards (1.3 HC, 15.5 CO, 10.7 NOx g/bhp-h).

3. The addition of new engine families using the transient test procedure for emission testing of both emission data and emission durability engines for compliance with the optional 1984 transient test standards (1.3 HC, 15.5 HC, 10.7 NOx g/bhp-h).

In every instance we will comply with 1983 requirements for useful life, durability testing and allowable maintenance as provided in the 1984 final rule

published January 12, 1983 at 48 FED REG, 1406.

We request confirmation that the above certification plan conforms with the provisions of the January 12, 1983 final rule.

Yours truly,

T. M. Fisher, Director
Automotive Emission Control

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